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THE ECONOMIC REVIEW, October 15th, 1914. Vol. xxiv., No. 4. *The Economic Position of Women.* By Prof. Edith J. Morley. Pp. 389-397. This is an account of some work carried out by the Fabian Women's Group (a branch of the Fabian Society), which came into being in 1908 as a result of the feeling among its promoters that there was need for women themselves "to discover what exactly it was that they meant by 'equality of opportunity irrespective of sex,' and how far such equality was attainable or desirable in the interests of the State and of humanity at large . . . . to discover how far difference of sex function must necessarily cause a difference of mental outlook and a differentiation of work. . . . The subject first investigated, from a large variety of standpoints, as a necessary preliminary to all useful discussion of the position of women, was that of their natural disabilities as workers. . . . The next step was to investigate the position of women as workers and as consumers in this country in former ages. . . . Fifteen historical papers dealing with various aspects of the subject have been read and discussed." These papers, the titles of which are given, deal with women before the Reformation, women in skilled industries, in agriculture, and in mining before the Act of 1843-44. The committee has also published the first volume of a series based on the papers and discussions at the Group meetings, viz., *Women Workers in Seven Professions* (Routledge). The professions treated are "Teaching," "Medicine," "Nursing," "Sanitary Inspection and Health Visiting," "Civil Service," "Secretarial Work," "Acting." A series of pamphlets has also been published by the Fabian Society on (1) "The Working Life of Women," (2) "Family Life on £1 a week," (3) "Women and Prisons," (4) "The Economic Foundations of the Woman Movement," (5) "Women in Agriculture: Their Work and Payment." An inquiry has also been instituted to discover the proportion of women working to support others besides themselves. The papers and pamphlets named in the article constitute useful bibliographies on the subjects indicated.

The Social Welfare Movement. By F. G. D'Aeth. Pp. 404-414. The first Council of the Social Welfare movement was the Liverpool Council of Voluntary Aid, formed in November, 1909, the essential object of the movement being the organisation of institutions, while the Guild of Help and the Charity Organisation Societies are essentially concerned with the organisation of case work. The author remarks, however, that this fundamental difference is only just emerging. "There are some Councils of Social Welfare which do case work and some Guilds of Help which in some degree take part in the organisation of institutions. Indeed, in a smaller town or suburb it may be quite fitting for the same body to undertake both functions, provided that the two functions are kept quite separate and not confused. . . . By the phrase 'organisation of case work' is meant the adequate relief of need in any form by securing the co-operation of the various societies or institutions which are, between them, concerned with the particular person or family involved. . . . The organisation of institutions may be said to aim not only at seeing that the necessary institutions exist in a town, but also that the various institutions co-operate together so that between them the field of need is adequately covered."

The constitution of the Council of Social Welfare varies in different towns, that in Liverpool being considered most typical of a large centre: "It is a representative body formed of a number of constituent institutions which embrace, with slight exceptions, all the standard charitable and

social institutions in the town. In addition to these there are nominated members representative of the committees of the various local public authorities, and of several of the central Government departments. The local public officials are *ex officio* members, and there are a few co-opted members. The *personnel* of the Council is thus probably the most substantial of any body in the town. . . . The development of district organisation is a matter which follows rather than precedes central organisation."

SCIENCE PROGRESS, October, 1914. No. 34. *Science and the State: A Programme.* Pp. 197-208. Following the action taken by the Editor of *Science Progress* in calling attention to the sweating of science in this country, the British Science Guild has appointed a committee to investigate the conditions prevailing. For the betterment of science in Britain the following programme is suggested:—(1) Improved payment of scientific workers in universities and other State-aided institutions. (2) Special arrangements for stimulating research in these institutions. (3) More careful regulation of selection for appointments and the placing of professorships upon a State-regulated standing. (4) Payment by the State for expert evidence. (5) Payment of compensation for proved pecuniary losses to investigators whose researches have proved of benefit to the public or to Government departments. (6) Payments of special rewards or pensions to investigators whose researches have proved of pecuniary advantage to Government departments, or of general advantage to the public. (7) A higher place for science in national education. Regarding the pay of demonstrators, lecturers and professors, Dr. Makower gives the average rate for 15 universities and university colleges in England and Wales as follows:—"Average salary of professors, £628; lecturers and demonstrators, £137." It is pointed out that the highest salaries and pensions in academical life are extremely small compared with those given in military service or the law—and the position is also comparatively lower. A scheme suggested by Professor Soddy is considered well worthy of attention; it provides for stimulation of research in university departments by increasing the grants for each department *pro rata*, according to the research work done.

Some Recent Additions to our Knowledge of the Germ-cell Cycle in Animals. By Robert W. Hegner, Ph.D., University of Michigan, U.S.A. Pp. 270-280. Certain stages in the history of the germ-cells have been especially emphasised, for instance, the maturation of the ova and spermatozoa. In this article the author discusses the early segregation of the germ-cells in embryonic development. "According to the idea of the morphological continuity of the germ-cells, as first expressed by Jäger and Nussbaum, and later elaborated by Weismann and others, the germ-cells are separated from the somatic cells at an early stage in the development of the egg, and they, and they only, are able to produce eggs and spermatozoa. These germ-cells are protected, nourished and transported by the body in which they lie; they later separate from the body and take part in the formation of new individuals, whereas the body dies. The origin of the germ-cells has recently been definitelv determined in a number of animals belonging to widely separated phyla, and while there are still some groups which have been carefully studied (such as the Cœlenterata and the Porifera) in which an early segregation of the germ-cells has not been demonstrated, there is no doubt concerning this process in certain insects, crustaceans, nematodes, and in *Sagitta*. . . . In 1906 the first account of Silvestri's researches on the development of hymenopterous parasites appeared. This was followed two years later by additional studies by the same investigator. The development of both monembryonic and polyembryonic species was worked out. In all cases, both in parthenogenetic and fertilised eggs, the ovum at the time of deposition contains near the anterior end a nucleus, and near the posterior end a body called by

Silvestri the 'nucleolo,' and considered by him as a nucleolus (meta-nucleolus) which had escaped from the germinal vesicle. . . . The last-named problem has recently been solved by the writer. The 'nucleolo' is not a nucleolus which has escaped from the germinal vesicle, but consists of chromatin. Because of its constitution and fate I have called it Keimbahn-chromatin. . . . The development of the pædogenetic larvæ of *Miastor* furnishes us with the best example of the Keimbahn in any animal. Kahle's careful work on *Miastor metraloas* has been confirmed by myself for *M. Americana*. . . . An early segregation of the germ-cells has been described in many other dipterous insects; of these perhaps the best account is that of Hasper on *Chironomus*. . . . The origin of the germ-cells in certain chrysomelid beetles has been shown by the writer to be similar in its main aspects. . . . Experiments have shown that if the posterior end of a freshly-laid egg is killed with a hot needle, thus destroying the pole disc and the substance in which it is suspended, an embryo develops lacking sex-cells. . . . Two groups of Crustacea are known to contain species which exhibit an early segregation of germ-cells. Haecker's investigations on *Cyclops* have recently been repeated by Anuna and extended to include species from the genera *Diaptomus*, *Canthocamptus*, and *Heterocope*. . . . Kuhn's researches on the summer egg of the Cladoceron, *Polyphemus pediculus*, show that in this crustacean the stem-cell can be identified by the remains of one or several nurse-cells. . . . The experimental results of Boveri and Hogue are of much interest. Studies of dispermic and centrifuged eggs have proved that the chromatin-diminution process in *Ascaris* eggs is not controlled by the nucleus, but by the other egg contents. . . . In the mature egg of the arrow worm, *Sagitta*, Elpatiewsky discovered a peculiar body (the 'besondere Körper') which becomes segregated in one cell (the stem-cell) until the thirty-two-cell stage. . . . Stevens and Bucheser have confirmed Elpatiewsky's results. . . . Many recent reports have been published upon the germ-cells of vertebrates, and for a time it seemed from the researches of Rubaschkin and Tschaschkin that the new methods devised for the purpose of staining the mitochondria might aid us in solving the problem of the origin of the germ-cells in this group; but later investigators, such as von Berenberg-Gossler and Swift have been unable to discover any distinction between the mitochondria in the germ-cells and those in the somatic cells of vertebrate embryos. Dodds has found in the teleost, *Lophius*, an inclusion in the cytoplasm of the germ-cells in young embryos which he thinks may be of nucleolar origin. . . . The writer several years ago suggested two views as to the probable significance of these inclusions; first, they may actually represent the idioplasm, and second, they may consist simply of nutritive materials. . . . One fact that seems more and more certain as the results of investigations accumulate is that the cytoplasm cannot be ignored when the physical basis of inheritance is under consideration."

THE PARENTS' REVIEW, November, 1914. Vol. xxv., No. 11. *The Physical Basis of Education.* By Benjamin Broadbent. Pp. 771-779. In this lecture, delivered to the Huddersfield Branch of the P.N.E.U., the lecturer remarks that there seems to be a general awakening to the unsatisfactory condition in which school children begin what is called their educational course, and points out that the percentage of really sound, healthy children at five years of age is appallingly small. The greater number are lacking in one respect or another, and as the lecturer points out, "There is no part of the body that mind and soul can spare. The body is one indivisible whole, just as the intellect is one, just as the soul is one." He gives the opinion of one of the most eminent physiologists, that in the development of the child from the time of its birth, the process is so planned that the brain has first call on whatever food the

child receives—the body suffers first and not the brain. "The inference is that before education, in any proper sense of the word at all, begins, there should be provided, in a proper condition, the brain of the child, the physical basis on which all the educational structure is to be reared. At five years of age this physical basis is about as complete as it ever will be."

School Clinics. By Leslie Kingsford, M.D., School Medical Officer, Liverpool. Pp. 829-836. In this paper, read before the Liverpool Branch of the Child Study Society and the Parents' National Educational Union, on January 16th, 1914, the lecturer recounts that medical inspection of school children was unanimously instituted by Parliament in 1908, and remarks that it has led to the discovery of a vast amount of child suffering of a nature and to an extent previously unsuspected. "Medical supervision ensures that the child shall have his physical defects discovered and treated, that his home conditions shall be improved, that his educational environment shall be suited to his mental and physical capabilities, and that the child shall have the best opportunity of reaching to his highest possible attainment." The lecturer points out that, generally speaking, the agencies instituted to carry out the provisions of the Act have proved themselves unable to cope with the problem, and suggests that the solution is to be found in a new organisation, the "School Treatment Clinic," which should be instituted so as to be in close touch with the local education department. (The powers with regard to the establishment of clinics are conferred under Section 13 of the Education (Administrative Provisions) Act, 1907.) The lecturer points out that the *raison d'être* for a new organisation to deal successfully with children's ailments is "Most of these defects are of a more or less chronic character, and require, in many instances, daily careful attention, and, in some instances, as in the case of defective eyesight, special training and experience." Many of the defects to be treated fall normally to the lot of the specialist, and the fees for such treatment are prohibitive to most of the parents of elementary school children.

NATURE, November 12th, 1914. Vol. 94, No. 2350. *Recent Aspects of Mutation.* By Dr. R. Ruggles Gates. An interesting though far too compressed summary of the most recent work on the mutations and inheritance of *Œnothera.* It has been established that *Œ. Lamarckiana* (Ser) is an endemic species of North America, and did not originate in cultivation nor come from Texas in 1860. In order to show that *Lamarckiana* does not differ in any respect from other species the author gives the history of *Œ. Biennis* (L), *Œ. Parviflora* (L), *Œ. Angustissima*, and others, concluding that attempts to produce *Lamarckiana* artificially by crossing geographically contiguous species would be futile, since this would have occurred naturally owing to the ease with which these species cross.

Œ. Lamarckiana, in common with other species, shows two kinds of polymorphism, that is to say, various racial differences as well as mutations.

The author is of opinion that mutations cannot be explained on the Mendelian assumption that they are combinations of hybrids, and moreover, that Mendelism itself is only the account of a mode of inheritance, and not a theory of the origin of new characters. To show that mutation is really a phenomenon of variation and not merely of inheritance, the case of the mutation *Œ. Rubricalyx* is cited. When *Rubricalyx* is crossed with *Œ. Grandiflora*, the red colour in the F_1 generation proves to be dominant, and in the F_2 generation sharp segregation usually takes place, but occasionally an intermediate paler type is produced; by selfing these pale individuals it was found that the F_3 generation bred true, thus producing a new type, which, when crossed with the grandparent, *Grandiflora*, produced further conditions of dilution and blending. Thus a unit character

originating from mutation may be modified by crossing with another species. The fact that mutation is a phenomenon of variability is also upheld by cytological changes which accompany mutation. It is found that the chromosomes often become reduplicated, one of them passing into the wrong germ-cell in mitosis.

In the majority of cases in which no alteration in the chromosomes accompanies the mutation, the author supposes that the change is a chemical one, affecting one or more chromosomes; he even prefers this hypothesis when the inheritance shows a sharp Mendelian segregation.

NATURE, January 28th, 1915. Vol. 94, No. 2361. *Mendelism in the Seventeenth Century.* By Clifford Dobell. Mr. Dobell communicates an unpublished letter of Leeuwenhoek's, written in 1683 to the Royal Society, and addressed to Sir Christopher Wren. In it he describes the Mendelian phenomenon of the dominance of agouti rabbits over blue, black, and the other domestic varieties. The fact that the F_1 generation of these crosses contained nothing but wild coloured animals was, he says, well-known to the rabbit fanciers of Holland at that date.

CHILD STUDY, December, 1914. Vol. vii., No. 8. *Intensive Child Culture.* III. By Sir James Crichton-Browne, M.D., F.R.S. Pp. 133-138. Continuing his remarks on electrification, the lecturer says—"In the case of babies and children, who have, it is to be hoped, a long and varied existence before them, electrical experiments, even if it could be shown that they stimulated growth and quickened the wits, would not, I think, be justifiable. . . . Let us leave our nurseries and schoolrooms unwired, but flooded as much as possible with that light about the beneficial influence of which on growth there can be no question." Dealing with the subject of *Heliotherapy*, he says:—"A sun-cure at an elevation of 6,000 feet has been inaugurated in Switzerland for the benefit of delicate and diseased children. At that height a large proportion of the solar light has not been intercepted or absorbed by our air-jacket, and the violet and ultra-violet rays are in full force. By exposure to sunlight at that elevation it is found that living tissues do not undergo septic processes, and that a markedly beneficial effect on general health is secured, where that has been impaired. . . . The boys and girls subjected to the sunlight treatment who work and play in the snow in a state of nudity, or lie naked in their beds fully exposed to the impact of the sun's rays, show promptly, Professor Roget says, a change in the colour of the skin to a ruddy, healthy brown, with an increase of muscular energy and general vivacity, while any tuberculous sores they may suffer from dry up, the diseased tissues crumbling off and a new cell activity setting in." As to this the lecturer remarks:—"It is to be remembered that other hygienic agencies have been co-operating with the sunlight. The children have, in many instances, been removed from bad homes and placed in sound sanitary conditions. . . . While recognising the value of the blue-violet and ultra-violet rays in certain morbid states, it is well that we should guard ourselves against regarding them as a panacea." Referring to the introduction of blue glass windows in some American schools and the tendency towards bareness and increased cutaneous exposure, the lecturer says:—"With reference to the cult of nudity, I am inclined to think that in a climate like ours, it can be but of narrow application, and that without it the full nutritive value of light may be secured. . . . Light operating through the eye, brain, spinal cord and nerves, appears to be a universal tonic, promoting nutrition and therefore growth, and thus increasing the resistance to disease." Under the head *The Practice of Child Forcing*, he finally remarks:—"I have referred to electricity and light in connection with child study because their proposed application in the manner adverted to illustrates what I regard as one of the dangers of the day, and that is, child forcing by whimsical methods."

MAN, December, 1914. Vol. xiv., No. 12. *Cross Cousin Marriage in South India.* By F. J. Richards. Pp. 194-198. In most of the castes of Southern India the most suitable bride for a boy is considered to be his maternal uncle's daughter. Next in favour stands his paternal aunt's daughter, while in other castes he has a preferential right to marry the daughter of his sister. A girl who is married by virtue of her relationship to her husband is called an "*urimai* girl"; one who is chosen to enhance the husband's position or wealth is called a "*perumai* girl." The rule which is common among both Tamils and Telugus is known to the latter as *mēnarikam*. "The degree of rigour with which this rule is enforced varies in different castes, and sometimes it is a mere matter of form to offer the fortunate uncle or cousin the first refusal. Its rigorous application among the Komatis suggests that the practice of cross cousin marriage in South India should be explained on economic grounds. The Komatis are the wealthiest caste of traders and moneylenders in South India." There is abundant evidence that inheritance through females was at one time general through Southern India. The matrilineal system of inheritance was a feature of the sub-culture of the South, on which the Brahmanic super-culture was imposed. The latter lays vital stress on inheritance through *males*. The author suggests that in Southern India economic considerations, and in particular, the transmission of "family property," exercise a very material influence on marriage relationships. "The rule which gives a man the first refusal of his sister's, his maternal uncle's, or his paternal aunt's daughter in marriage may be interpreted as a sort of compromise between matrilineal succession and Brahmanic law; it preserves inviolate the principles of matrilineal inheritance under patrilineal forms."

Descendants of Immigrants, Changes in Bodily Form. By Franz Boas. (Columbia University Press, 1912, 7s. 6d.) In his review of this book (pp. 206-208) Mr. H. J. Fleure says:—"An enormous mass of figures concerning immigrants into America is here collected and tabulated to support views which, if accepted and developed, would make a considerable difference in our anthropological outlook. . . . Boas confirms other workers' observations in stating that, as regards cephalic index, children do not usually form a blend between their parents, but show the one type or the other; this view, however, he (again) bases on averages and on calculations rather than on individual cases. In some of the tables cephalic indices are reduced to adult equivalents, an average annual reduction being allowed."

HIBBERT JOURNAL, January, 1915. Vol. xiii., No. 1. *The Scientific Claims of Eugenics.* By Louis Trenchard More. In an article, which is clearly from a prejudiced standpoint, Mr. More denies the claim of eugenics to the position of a science, because it is not so exact as his own science, physics. After some further criticism, most of which is beside the point, because it is directed against proposals which no sane eugenist ever made, he concludes by admitting that eugenics has after all some scope for useful work. This work, as defined by the author, seems to be so extensive and so excellent that it would satisfy the most ambitious eugenist. Mr. More forgets that there is as great a difference between the immediate aims of the practical eugenist and his conception of the ultimate object of eugenics, as there is between Mr. More's knowledge of physics and his conception of the ultimate constitution of matter.

The Jews through Roman Spectacles. By Prof. Herbert A. Strong. Pp. 300-313. The author deals in this article more especially with the attitude of the Roman people of the Empire towards the Jews and their religion. He points out that those who followed the State religion of Rome naturally felt resentment against a people who professed that its tribal deity was supreme when they themselves had passed into subjection. Moreover,

the Roman deities were "clear-cut beings with definite functions" whose very personality was familiar to the nation, while Juvenal reproached the Jews as mere cloud-worshippers. The very exclusiveness of the Jewish religion also rendered it more offensive to the Romans, and the author quotes Quintilianus to the effect that "those who are founding a new city ought to be careful of admitting into it any race which may be pernicious to others, as for instance, the Jews." Notwithstanding the fact that new objects of worship were readily admitted in Rome, the religions of the Romans and the Jews differed so markedly in spirit that Judaism was regarded as a hostile element. The keeping of the Sabbath also was a great stumbling block to the Romans, who considered it a sheer waste of time. Referring to personal characteristics, the author quotes Tacitus on "the undoubted honesty and piety which characterised the dealings of the Jewish community," and continuing, remarks: "There were other personal peculiarities attaching to the Jews which struck the Romans unfavourably. One of these was, of course, the distinctive mark adopted for health's sake and cleanliness, which they shared with the old Egyptians. Another was the unpleasant odour which the Romans ascribed to the Jews. . . . It must be remembered that most of the Jews resident in Rome exercised the trades of petty hawkers and lived in crowded hovels." The author remarks, however, that apart from trade or occupation many races possess an odour which is obnoxious to other races; in Europe, for instance, an Englishman newly arrived in Germany betrays himself by an odour, in no way offensive, but apparently due to our smoky atmosphere.

A Physiologist's View of Life and Mind. By Prof. D. Noel Paton. Pp. 367-381. In the first place the author aims at explaining in terms of ordinary physical and chemical processes the phenomena of living things, proceeding from a consideration of such matter in its simplest and least complicated form to that of the more complicated forms. As an example of the former condition he instances the yeast torula, and remarks that whereas in the case of a crystal the energy liberated by oxidation is lost, in the case of yeast, some of the energy liberated under similar conditions is used to build non-living matter into living matter. This, he points out, is the essential distinction between living and dead things. "The reproduction of living matter and the phenomena of heredity have been seized on by ultra-physicists as phenomena that cannot be explained by the ordinary laws of physics and chemistry. In dealing with the problem they have confined themselves to the consideration of reproduction in higher forms of life, and have not tried to analyse the probable course of evolution of the process." He points out that while in unicellular organisms the unit is both the gametic and the somal entity—*i.e.*, is both the reproductive as well as the nutritive part—in all higher forms these are separated, one set of cells forming the reproductive part, the gametics, and the other the body or somal, through which it obtains its nourishment. The author then proceeds to a consideration of the development of multicellular organism, and, applying Newton's first law, says:—"A mass of protoplasm placed under the same conditions as that from which it arose must undergo the same changes and develop on the same lines." This he calls the "Hereditary inertia of living matter," and adds "much of the mystery that has been made of the phenomena of heredity is due to the failure to recognise this kinetic aspect, to recognise that it is not some representation of the whole structure of the parent, gametic and somatic, that is transmitted to the offspring, as the doctrine of preformation postulates, but simply the special mode of chemical change. . . . Regarding heredity from this chemical or kinetic standpoint, and recognising the interaction between the organism, as the multicellular creature may properly be called, and its surroundings, the possibilities of adaptation to these surroundings appear endless. . . . In man the adaptation to

his surroundings has been evolved by the special development of a nervous system, by which, in spite of his poorly-developed musculature, he has been able to cope with the antagonistic agencies around him."

So far, the author remarks, the phenomena of living matter require no more for their explanation than do the phenomena of non-living matter. Its origin, persistence and spread, reproduction and adaptation to its surroundings can all be explained in terms of physical and chemical changes. The author aptly remarks that all this would have gone on just the same had no mind been present to perceive it, but the consideration of how *we* have gained this information at once introduces something quite new—the phenomenon of consciousness. Discussing consciousness he remarks:—"Here is something about the relationship of which to matter and energy we know nothing." Taking sensation as the simplest manifestation of consciousness, as the basis of its more complex activities, these more complex activities depend upon the association of sensations, this association depending upon the activity of nerve fibres connecting different parts of the brain, so that, "when these are interfered with, the change of consciousness as the result of any stimulus from without may be quite different to that observed in the normal conditions." Of the true nature of consciousness no one so far has been able to discover anything. There is no evidence that consciousness is an essential of living matter. In conclusion, the author thinks that if we adopt the kinetic view of heredity, there is no difficulty in extending the physical and chemical laws which explain the phenomena of dead matter to the explanation of the phenomena of life, but he thinks it must always be impossible to apply them to the explanation of consciousness.

NINETEENTH CENTURY, February, 1915. No. 456. *Nietzsche and Darwinism.* By the Right Rev. Bishop Mercer. The distortion by Nietzsche of some of the famous pronouncements of Charles Darwin and the influence which these distorted views have exerted on Treitschke is, in the opinion of the author, largely responsible for the present moral attitude of Germany and for much blame which has fallen on Darwin in this country. Nietzsche has laid particular stress upon the well-known terms, "struggle for life," "survival of the fittest," and "natural selection," and is unsparing in his condemnation of everything that does not accord with the processes they describe. Of "strength" he says "that it should not be athirst for enemies, resistance and triumph is as absurd as to demand of weakness that it should manifest itself as strength"; of "sympathy" that "it stands in antithesis to the tonic passions which elevate the energy of the feeling of life." A nation inoculated with such teaching is likely to adopt a policy of "frightfulness" in dealing with those who offer opposition to her wishes. The author remarks:—"Nietzsche's excesses would not have been wholly unfruitful if they served to arouse in us a sense of our danger from an oversentimental interference with Nature's selection of the fit. It is possible to look too much to the temporary whim or impulse of an unfit individual and lose sight of the permanent benefit of the race. True, the methods of a humanitarian eugenics would be indefinitely removed from those which Nietzsche contemplates. They would call for the finest strain of human sympathy, and be guided by the most prescient and enlightened regard for the complex issues involved; they would aim at the development, not of superior despots, but of a superior race. Nevertheless, they would keep in view, on the plane of reason and moral action, the principle of elimination so arrestingly manifested in the process of natural selection." Continuing, the author says with regard to Nietzsche's impassioned plea for the self-assertive factor in the cosmic process, "I desire to secure full recognition for the existence and function of a co-ordinate and correlative factor, present in germ from the very first, and destined to continued increase in dominance and significance . . . . the factor of self-sacrifice,

using the term 'self-sacrifice' in its fullest connotation as including all forms of social co-operation, sympathy and love. I call it 'co-ordinate and correlative' not merely on the ground of historical fact, but because without it there could have been no 'struggle' at all. Unadulterated self-assertion would have wrecked its own existence, and have rendered the whole course of biological evolution impossible." Commenting on the enormously complex system of interdependences which prevail throughout the whole realm of living organisms, the author remarks:—"There is in nature no such thing as a self-contained individual." Referring to the relation between parents and their offspring, he points out that, far from ignoring it, as Nietzsche has done, Darwin, in his *Descent of Man*, devotes a whole chapter to the origin and development of this impulse. And again, referring to the impulses which prompt to social service, he quotes one of several passages which prove how fully alive Darwin was to their significance and function, viz.:—"A tribe rich in social qualities would spread and be victorious over other tribes; but in the course of time, it would, judging from all history, be in its turn overcome by some other tribe still more highly endowed. Thus the social and moral qualities would tend slowly to advance and be diffused throughout the world. . . . A tribe including many members who, from possessing in a high degree the spirit of patriotism, fidelity, obedience, courage, and sympathy, were always ready to aid each other and to sacrifice themselves for the common good, would be victorious over other tribes; and this would be natural selection." These quotations express with absolute clearness Darwin's views, and prove the extent to which Nietzsche has distorted the facts and the spirit of Darwinism.

"For Darwin's world there is the power of an expanding hope.
"For Nietzsche's world there is nought but ruin and ravin."

FOREIGN.

REVUE ANTHROPOLOGIQUE, Juillet-Aout, 1914. *Cours d'histoire naturelle de l'homme: Peuples de l'Asie orientale (Onzième leçon).* By L. F. Jauffret. Pp. 261-276. This article deals specifically with the Chinese. The author points out that this people differs from the Mongols rather in manners and customs than in appearance, the altered conditions of climate and environment being responsible for the higher culture of the Chinese. The appearance, manners, domestic customs and dress of the people are described in considerable detail, also their religion, language and buildings. The article affords a good general survey, sympathetically written.

Métis de Cochinchine. By Dr. Holbé, correspondant de l'École d'Anthropologie. Pp. 281-293. The author opens his article by remarking that the Annamites, especially those of the South, are of extremely mixed blood; and that there is no longer an Annamite race, except in so far as language and manners are concerned. He considers that the means of identifying a race lies in the eyes and the expression. As regards appearance and constitution, he considers that French-Annamite half-breeds, like all other half-breeds whom he has examined, generally speaking, stand half-way between the races from which they spring. Occasionally the Franco-Annamite offspring is of distinctly European type; and in the case of "quarterons" this is almost invariably so, the opposite holding good in the case of half-breeds having three parts indigenous blood. The author supplies some particulars on fecundity, viz., as to half-breeds married to Annamite women; half-breeds married to French women; half-breeds married to half-breeds. The author proceeds to give details of individuals with some illustrations.

REVUE ANTHROPOLOGIQUE, Septembre-Octobre, 1914. *Essai anthropologique sur les nègres et les mulâtres du Congo.* Par le Dr. Gaston Daniel, Médecin des écoles de la ville de Bruxelles. Pp. 356-372. The

author prefaces his remarks on different kinds of black people whom he met in the district of the Belgian Congo by claiming the need of personal and direct observation at a time when the subjects observed are not suspecting it. Psycho-physics, he maintains, cannot replace this method of observation. Immediately the native black suspects that he is being observed he poses. Information must be gathered "by surprise" to be of actual value. The author considers many of the measurements laid down by different authorities as so much waste of time. He remarks that in parturition, cases of dystocia are rare, being more frequent in the birth of a Mulatto. Children usually walk at nine months and begin to talk at an earlier age than in "White" countries. Dealing with the disposition of these races, he mentions particularly the great affection and consideration shown to children. Orphans are at once adopted by another family; the disposition of the tribe is invariably communistic. Particulars are given of the Mongo type (from near Basoko), of a Sango boy (a race from near Ubangi), and a Manyanga boy.

Half-breeds: Under the head "Black Half-breeds" he remarks that the fusion of the black races is of great importance as a means of suppressing the rivalry of the different races. Particulars are given of a native of Lagos (a Haussa) and his children by a woman from the neighbourhood of Stanleyville.

Mulattos. The mulattos, with whom he deals first, are offspring of the European population located at St. Paul de Loanda and in Angola generally. The men become clerks and shopkeepers, perfectly skilled in their business. The women become housekeepers and are well known in the Belgian Congo. The mulattos of the Belgian Congo apparently have no definite place in the social scale. The offspring of an Italian and a Basongo mother; and of a Belgian and of a Baluba (Kasai) woman are described.

BULLETIN DE LA STATISTIQUE GÉNÉRALE DE LA FRANCE, July, 1914. Vol. iii., Fascicule 4. *Population (Mouvement, État Sanitaire, Assistance).* Pp. 348-352. The movement of population is for the year 1913, and the two preceding years. Births in 1913 were 41,901 (in 1912, 57,911); number of children living, 745,539. A comparative table is appended, giving details for European countries for 1910-12.

État Sanitaire: The causes of death in towns of 5,000 inhabitants and upwards for the years 1910-12 is given in tabular form. The most marked regular decrease is under pulmonary consumption, which in 1910 was 26.3 per 10,000 inhabitants, and for 1912 is 25.8.

Assistance: The different forms of relief are given in tabular form, comparison being made with England.

Criminalité: Étude statistique sur l'anthropometrie criminelle en Angleterre. Pp. 369-378. This is a statistical review of the information contained in Charles Goring's *The English Convict.* The tables should prove of value.

JOURNAL OF HEREDITY, January, 1915. Vol. vi., No. 1. *Sexuality in Plants.* By Duncan S. Johnson, Professor of Botany, Johns Hopkins University, Baltimore. Pp. 1-16. This address, delivered at the meeting of the American Association for the Advancement of Science, in December, 1913, was published in complete form in *Science,* N.S., Vol. xxxix., 1914, and reviews the important discoveries which have resulted in building up our knowledge of the reproductive process in plants. The illustrations in this present article were selected as being more readily intelligible than the detailed technical drawings of the early investigators whose works are referred to. The author aims particularly at indicating the sequence of discovery of the different phases of the sexual process. He deals with the knowledge of the Assyrians, Babylonians, Greeks and Romans, and with early guesses and experiments; with Koelreuter's

hybrids, the discovery of the pollen tube, the origin of embryo, and the discovery of protoplasmic fusion. Dealing with the study of algæ, he refers to the advantage that algæ offered for the study of fertilisation since the development and behaviour of the reproductive organs and cells could be readily observed under the microscope. The author sums up by remarking that observations warrant the general application of Strasburger's conclusion that a nuclear union is the characteristic feature of every sexual process.

Prepotency. By Edward N. Wentworth, Professor of Animal Breeding, Kansas State Agricultural College, Manhattan. Pp. 17-20. In this article the author gives his views for differing from the ideas of prepotency commonly held by animal husbandmen and breeders. He considers that prepotency is a quality belonging to *characters* rather than *individuals*. He quotes Dean Eugene Davenport, as follows, for the popular idea on the subject: "Prepotency, of course, is a corollary of the law of ancestral heredity. That parent that has behind him the largest mass of back ancestry selected to the same characters, will, of course, be prepotent. If you take the series of fractions, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, etc., and divide them by 2, representing the contribution of the sire and the dam, you will obtain the possibilities of each expressed in the fractional form so far as prepotency is concerned. . . .If, now, all the individuals represented by these fractions have been selected to the same standard, then, of course, the sire, backed by his ancestors, will control one-half of the possibilities of the offspring, regardless of what the female will be. Of course, the same would be true for the female under like conditions. This, it seems to me, is the essence of prepotency, and it is all there is of it." The author remarks with regard to the foregoing pronouncement that those who have conducted genetic experiments and watched the segregation of individual factors feel that the conception is manifestly outside of the facts. The behaviour of hereditary characters as though controlled by unit factors in the germ-plasm leaves no room for a cumulative effect of ancestry. . . . "Even the parent himself has no effect on his progeny in an hereditary way, as inheritance does not really consist in the passing on of characters from one generation to the next. The similar characters of parent and progeny develop because both parent and progeny arise from qualitatively the same germ-plasm (as far as the particular characters are concerned). . . . Prepotency is never a property of the individual, but belongs to a certain few characters that are part of the hereditary make-up of the individual, and their condition of homozygosis or heterozygosis is the entire determining factor." In the author's opinion the linkage or coupling of separate factors in heredity explains observed prepotency and the difference between "breeders of breeders" and "breeders of performers."

Live-Stock Genetics. Pp. 21-31. This is a review of the work in Experimental Animal Breeding now being carried out at the various agricultural experiment stations in the United States by the Research Committee on Animal Breeding. Referring to the investigation being carried on regarding *Inheritance of Fecundity in Poultry*, the committee report two definite results, viz. :—1. That the record of egg production or fecundity of a hen is not of itself a criterion of any value whatsoever from which to predict the probable egg-production of her female progeny. 2. That notwithstanding this fact, fecundity is, in some manner or other, inherited in the domestic fowl, one reason being that it is possible to isolate and propagate from a mixed flock "pedigree lines" or strains of birds which breed true, generation after generation, to definite degrees of fecundity. "As to the real solution, Pearl thinks the capacity for high egg-production is inherited through the sire rather than the dam, experiments having shown that high egg-producing hens and low ones produced daughters having the same grade of egg-productivity when mated to the same cock." *Inbreeding:* Referring to the degree to which in-

breeding may be carried advantageously, the general opinion among genetists seems to be that the question of degree is *in itself* of secondary importance, the real question being the quality of the animals inbred. *Studies of Cattle.* At the Massachusetts station an attempt is being made to work out a comprehensive correlation between dairy form of cattle and butter-fat and milk production. *Racial Poisons:* The supposed existence of racial poisons, *e.g.*, alcohol and lead, is being closely tested at Wisconsin, and what appear to be decisive results have already been obtained. *Poultry:* At Rhode Island station a new breed of fowls has been produced as a result of crossing pure-bred white with pure-bred black fowls, the result being a barred race. *Prepotency:* The Kansas station is just starting an experiment to determine the relation of ancestry to prepotency. *Influence of Age of Parents upon Offspring:* A series of experiments is being carried out at Missouri as to the effect of mating young animals continuously.

Feeble-mindedness. By the Editor. Pp. 32-36. In this review first consideration is given to the research work of Dr. Goddard, of the Vineland Training School, in whose opinion two-thirds of the cases of feeble-mindedness are due to heredity. He considers that the so-called "criminal type is merely a type of feeble-mindedness. A large proportion of the chronic alcoholics and prostitutes are found to be feeble-minded; in fact, the Binet tests have rarely failed to show that the number of social problems whose solution lies with genetics rather than with ordinary sociology is very great." Referring to the unit character question, the Editor remarks that Goddard "confesses to being one of those psychologists who find it hard to accept the idea that the intelligence even *acts like a unit character.*" The need for more research is urgently advocated. Society is responsible for protecting itself. There is no safeguard in a dependence on some mystical help from Nature; it must protect itself by deliberate intervention. There is general agreement that effective segregation should be extended. Dr. Goddard thinks that we must colonise as many of the feeble-minded as we possibly can, that we must sterilise some, and the rest, representing the higher grades, should be educated. There remains a question of first importance to the eugenist: the relation to marriage selection of the woman who is left at liberty.

Superiority of the Eldest. By Corrado Gini, Professor of Statistics, University of Padua. Pp. 37-39. The author has on several occasions directed attention to the importance of studying the characteristics of children with relation to their order of birth in a family, one of the objects being to ascertain what consequences the habit, widely gaining ground, of limiting the size of a family, will have on the quality of future generations. According to the investigations of the author among Professors in Italian universities, the result shows that a large proportion are first-born children; children born late in the generation most rarely occupy such positions. Of 445 replies received from professors 416 related to families containing at least two children. The number of "first-born" professors coming from these 416 families is 141; in addition, 29 were "only child." Nevertheless, the author concludes that until further data is procured the supposition that the first-born are superior to their juniors, at least so far as concerns scientific attainment, must be accepted with reserve.

Prepotence in Plant Breeding. By John Belling, Florida Agricultural Experiment Station. P. 45. The author remarks that the work of breeding flowers, fruit and vegetables from natural or artificial crosses can be carried out excellently with a minimum of Mendelian theory, the most important idea in his opinion being *prepotence*, or strength of heredity, as it is sometimes called. To show in how loose a manner this term is used, the author quotes instances where it has been employed to embrace at least eight different Mendelian cases. He thinks that if the

breeder of improved plants uses pedigreed lines, instead of mixed cultures, and selects in each generation the plants which are most prepotent for the particular characters he needs, he can, usually, leave Mendelian formulæ to those who are working to discover new facts.

BULLETIN OF THE AMERICAN ACADEMY OF MEDICINE, October, 1914. Vol. xv., No. 5. *The Determination of Sex and Experimental Control.* By Oscar Riddle, Ph.D., Carnegie Institution. Pp. 265-284. In this paper, read at the annual meeting of the American Academy of Medicine, in Atlantic City, June 19th, 1914, the author deals first with the nature of sex and remarks :—" New evidence is at hand to indicate that Geddes and Thompson were right, when, from many kinds of data collected from the animal and plant kingdoms, they concluded that males and females broadly diverge on the basis of their metabolism—the males being the active, katabolic forms; the female the more passive, anabolic ones. By their work the problem of sex was freed from purely anatomic moorings, and, we believe, a true element of sex distinction pointed out." The author refers also to the pronouncements of Weininger and Montgomery, and then proceeds to " a consideration of recent and important experimental information concerning the control of sex," and claims that the sex of offspring has been actually and successfully controlled in doves and pigeons; probably also in rotifers, daphnids, frogs and cattle, instancing the Hertwig-Kuschekéwitch experiment with frogs' eggs whereby 100 per cent. of males was obtained by allowing the eggs to *over-ripen.* He also refers to the results obtained by Miss King at the Wistar Institute, where by first dessicating toads' eggs, and then fertilising them, 90 per cent. of females were obtained, thus effecting the converse of the Hertwig-Kuschekéwitch experiment. " The cases of sex-control in cattle and sheep are, basically, probably quite parallel to the conditions in frogs and doves, where we now *know* that greater and lesser water content accompanies the production of male and female respectively." The author enters at some length into the investigations of Professor Whitman in sex-control in pigeons, and the nature and biological basis of sex in these birds. He remarks :—" The sum of these results, together with the initial fact of sex-control, practically prove that the basis of sex is a fluid, reversible process; that the basis of adult sexual difference is a *quantitive* rather than a *qualitative* thing." Dealing with " Some phyletic and social aspects of sex," he says :—" Not only may *individuals* exhibit more or less of masculinity or of femininity; *species* may do the same." In the former category he places the European cuckoo, the sexes of which are indistinguishable externally, while there are from 5 to 25 male individuals for each female in the species. As a type of *feminine species* he instances the white ringdove. The males of this species display maternal instincts often and easily. In conclusion the author remarks :—" Through our knowledge of sex we are obtaining the key to a knowledge of how all characteristics exist in the germ. This bears well the grounded hope that experimental science can confidently undertake to modify and control the whole range of hereditary and developmental phenomena."

The Economic Importance of Lead Poisoning. By Alice Hamilton, M.A., M.D., Chicago. Pp. 299-304. This paper, read at the annual meeting of the American Academy of Medicine, Atlantic City, 20th June, 1914, is based on investigations made for the Bureau of Labour Statistics of the following lead trades :—Smelting and refining lead; making white lead and red lead; storage batteries; glazing and decorating pottery and tiles; enamelling sanitary ironware; painting. The author remarks that one of the most dangerous of the lead industries is the making of white lead. " In a white lead plant with a regular pay-roll of 58 there were 250 men on the books in six months' time, and a storage battery plant was found which had recently changed practically the whole of the pasting

force, so that where there had been exclusively Russian Jews there were only Slavs to be found. . . . Legge finds a much larger proportion of plumbism among the casual workers in the white lead industry in England than among those steadily employed, the figures being 39 per cent. for the former and only 6 per cent. for the latter." Continuing, the author gives the following account of lead industries in the United States generally :—" Among the 7,500 men in our smelters and refineries, no less than 1,769 cases were discovered during 1912, a rate of 23 per hundred. The makers of white and red lead, some 1,600, had 388 cases in 16 months' time, or a rate of 18 per cent. in a year. 930 storage battery makers had a rate of 17.4 per cent. during 1913. The 1,100 pottery workers had 8 per cent. for the men and 14 per cent. for the women, rates which were almost double those for the men and women in the British potteries. Enamellers of bath tubs and sinks suffer more than potters." The author also deals in some detail with the painting trade, and concludes with the following remark :—" Tuberculosis is the great foe of the working classes, but next to tuberculosis comes lead poisoning, and according to our present knowledge, the two go hand in hand, for lead favours the development of tuberculosis by lowering the resistance of the body to infection."

THE POPULAR SCIENCE MONTHLY, December, 1914. Vol. lxxxv., No. 6. *The Normal Child: Its Physical Growth and Mental Development.* By Professor Bird T. Baldwin, Swarthmore College. Pp. 559-567. This paper presents the result of a study of the physical growth (physiological age) and the pedagogical age (school standing) of a group of boys and girls from 6 to 18 years of age when observed consecutively, *i.e.*, in their course through the elementary and high schools. The data comprise 43,840 measurements obtained from about 1,000 boys and the same number of girls. The author records the following results among others :— " Boys have a greater lung capacity than girls, on an average, for all periods except at about 13 and 13½ years of age. Diseases seem to inhibit growth more during the late period of childhood than earlier. Accelerated growth and resistance to disease go hand in hand. Girls maintain a higher school standing than boys. . . . In the fourth and fifth grades the boys and girls are approximately the same, but in the last year in high school the boys are older on the average. The main educational corollaries which logically follow from this study would require that our school systems, public and private, be graded on the *physiological age and the accompanying stage of mental maturity* of boys and girls in place of the chronological age, as is now done. This would require that tall, healthy children of accelerated physiological age be encouraged to proceed through school as rapidly as possible within the limits of thoroughness, and that the small light children of retarded physiological development be kept below or in the normal grade doing supplementary work, *since these short light pupils are immature in mental development, although in many instances precocious in brightness.* It also follows from the study that rapid healthy growth favours good mental development, and therefore the healthy growing child should have plenty of physical and mental exercise."

Common Factors in Mental Health and Illness. By Dr. F. Lyman Wells, Maclean Hospital. Pp. 568-580. In this article the author deals with variations in different human traits which are produced by pathological conditions. The most important determinations, he considers, are those of Diefendorf and Dodge, on the reaction time of the eye-movements. " They found lengthened time in all the psychoses tested, slightest in the *manic-depressive excitements* and in *dementia præcox*, most marked, as would be expected, in *manic-depressive depression.* The angular velocity of eye-movements was found by these authors to be somewhat more rapid than normal in *dementia præcox, general paralysis,* and slightly also in *manic-depressive excitement,* while the slowest move-

ments were seen in the *depressions* and in *epilepsy*. The generally quick movements of manic cases and the slowness of depressed ones are a clinical commonplace."

The author remarks "Although it is far from the most difficult of psycopathological questions, but little knowledge exists on the subject of the speed of the higher mental processes beyond that afforded by clinical observation. Many of its basic problems are scarcely touched. . . . There is no clinical entity among the psychoses in which memory is improved, though the hysterical hyperamnesias furnish particular instances of it, as the corresponding amnesias do of memory gaps. . . . The most prodigious memory defects are seen in a psychosis of usually alcoholic origin, the *Korsakoff syndrome*, where, in spite of good understanding, all impressions are immediately lost; indefinite practise does not suffice to learn what a normal person gets with one or two repetitions. Memory seems essentially unaffected in *dementia præcox* and in the *manic-depressive psychoses*, though it may be marked by confusion, apathy or stupor. These factors are mainly responsible for the poorer performance in memory tests that most other pathological cases show. . . . Hallucinations are reported in all the major psychoses, but for the understanding of the clinical picture, they, and the delusional ideas which supplement them, play the most important rôle in those types of mental disorder which have been termed *biogenetic;* that is where the personality *as such* fails to meet the normal mental demands of the environment, and reacts to it along certain fairly definite pathological lines. These types of reaction may be for us summed up in the *manic depressive* and *dementia præcox* groups." In his summary the author remarks:—"The mental criterion of psychoses is essentially one of mental maladjustment to the surroundings, and often it is the only criterion, mental or physical. The individual differences that distinguish psychotic and normal personalities are not so much difference in motor power, sensory acuity, affectivity or intellect, but depend on the way in which this complex enables the individual to make appropriate reactions to his environment. An individual becomes psychotic when he fails to behave with a certain more or less arbitrary degree of appropriateness. Where the mental malfunctioning follows a sufficiently definite line, we may formulate a definite psychotic entity, as the manic depressive or the hysterical states. The experimental side of the dynamic psycopathology is therefore distinct from the academic psychology in that it is essentially grounded in the measurement of the reaction's *adequacy* or *fitness*. It involves a fundamental recasting of psychological methods, more along the lines of comparative psychology, whose details have only begun to be worked out."

THE TRAINING SCHOOL BULLETIN, December, 1914. Vol. xi., No. 8. *Sensory Discrimination in Normal and Feeble-minded Children.* By Miss Anna M. Petersen and E. A. Doll. This second and final instalment of the exhaustive study of sensory discrimination has led the investigators to the conclusion that discrimination of lifted weights is a function of intellectual rather than sensory capacity. The discrimination of defectives is slightly below that of normals of the same mental age. *Sex Differences:* In the case of normal children, the total averages for ages below 13 show a superiority of 5.5 per cent. in favour of boys. In the case of defectives the differences, though slight, are in favour of the girls. The results from the experiments indicate that nothing is to be gained from the training of the muscle-sense. The authors conclude with the remark that "At the present time experiments in sensory capacity are of considerable import for the pedagogy of normal and defective children. Much time and energy are being expended in meeting the feverish demand for 'sense-training.' . . .Most of the Montessori system has its basis, if not its ends, in the training of the senses to almost hyper-acuity, and to the Montessori movement may be ascribed much of the existing demand

for sense-training in general." A bibliography bearing on the experiments is attached.

THE JOURNAL OF THE SOCIETY OF SANITARY AND MORAL PROPHYLAXIS, October, 1914. Vol. v., No. 4. This number contains an account of papers read and discussions held at a joint conference of the American Social Hygiene Association and the Society of Sanitary and Moral Prophylaxis on October 9th, 1914. The subjects dealt with were as follows:—(1) *Departments of Correction and the Social Hygiene Movement.* By Miss Katherine Bement Davis, Commissioner of Correction, New York. This paper deals with present and future methods of the State for preventing the spread of the sexual diseases by criminals and paupers. (2) *The Interest of Life Insurance Companies in Social Hygiene.* By Lee K. Frankel, Ph.D. The lecturer considers the subject along two lines—(*a*) The utilitarian or practical; (*b*) the social. (3) *The Sunday School and Social Hygiene.* By Frank L. Brown, Joint General Secretary, World's Sunday School Association. The lecturer gives in some detail plans for imparting sex education to Sunday school classes. (4) *Boys' and Girls' Organisations and Social Hygiene.* By Luther H. Gulick, M.D. The lecture deals with the efforts to establish social relations among young people outside and apart from home influence. (5) *Social Hygiene Activities in* 1914. By Edward L. Keyes, Jnr., M.D., President, The Society of Sanitary and Moral Prophylaxis. The lecturer refers to various organisations co-operating in the promotion of social hygiene, and briefly reviews methods, under lecture work; medical work, social organisation, social organisations; religious organisations; educational organisations; vice. In his summary he points out that the real strength of the social hygiene movement lies in the *co-operation* of the great religious, social and educational bodies. What they aim at is the *prevention* of social evil. (6) *Medicine and the Social Hygienic Movement.* By Archibald McNeil, M.D., Chief of the Venereal Clinic, New York City Department of Health. The lecturer explains the steps taken by the Board of Health of the City of New York to control and combat the spread of venereal diseases, by enactments which came into force on May 1st, 1912. This requires the superintendents of all public institutions (and physicians) to furnish particulars of every patient under observation suffering from sexual disease, and provides for free examination and therapeutic facilities. (7) *Education and the Social Hygiene Movement.* By G. Stanley Hall, Ph.D., President, Clark University, Worcester, Mass. (8) *Legal and Administrative Phases of the Social Hygiene Problem.* By Abraham Flexner, Assistant Secretary, General Education Board, New York City.

BULLETIN OF THE AMERICAN ACADEMY OF MEDICINE, December, 1914. Vol. xv., No. 6. *Measuring the Cost of Child Labour.* By Alexander J. McKelway, D.D., and Owen J. Lovejoy, LL.D., General Secretary, National Child Labour Committee, New York City. Pp. 320-328. This paper, prepared by Dr. Lovejoy, was read by Dr. McKelway at the 39th annual meeting of the American Academy of Medicine, Atlantic City, on June 20th, 1914. It opens with an extract from the report of the physicians constituting the Board of Health for Manchester in 1796, in which they pointed out the injury done to young children through confinement and too long-continued labour, particularly in cotton mills, and strongly advocated legal measures for the abatement of these conditions. The impossibility of measuring the full cost of child labour is manifest, owing to the numerous elements invisible to the eye, but the author points out that it is believed to be one important cause of low wages and unemployment among adults, and leads to under-nourishment and overcrowding. To the children themselves there are costs in ignorance and inefficiency. The physical costs to the children are obvious and well understood. In the case of outdoor work and with older children, *i.e.*, above 14 years of age, the question is more debatable. In the case of children entering

industrial life the author thinks 16 years of age is young enough. In the majority of the States permits or physical examinations are necessary in the case of every child applying for work. The Medical Officer, Maryland Bureau of Statistics and Information, which issues the permits for Baltimore City, supplied the author with results of examination for height, weight and pubic age of 100 boys, averaging 15 years of age, who had been employed in factories for an average of two years each. He found their average height nearly one half inch lower than the standard for fifteen years, which he reckoned at 5 ft. 1 in.; and their weight 92½ lbs., as against a normal average of 106¾ lbs. Only 58 per cent. were of pubic age.

Causes of Morbidity and Mortality in the Industrial Parturient Woman and Measures for Improvement. By E. T. Montgomery, M.D., LL.D., Philadelphia. Pp. 329-332. The author refers to the importance of the influence exercised by the wife and mother on the future welfare of her progeny, and remarks that in many cases, when all her energies are needed to supply her existing children with food, she is handicapped by limited means, child-bearing and the responsibilities associated with the training of her children. During child-bearing, the author points out the necessity of women being in good health, mentally and physically. The consequences of neglect of any kind are likely to prove serious. The production of healthy children is of such overwhelming importance to the State that when the environment is unfitted to secure a woman from disease during gestation the author suggests that the State should provide for her and for the necessities of her children, so that it may be saved the care of weaklings.

JOURNAL OF HEREDITY, December, 1914. Vol. v., No. 12. *Studies in Human Heredity.* Report by the Committee on Research in Eugenics, American Genetic Association:—

Longevity. Dr. Alexander Graham Bell has just completed an exhaustive analysis of data contained in published genealogies of the Hyde Family with a view to discover the degree of inheritance of longevity. His material embraced nearly 3,000 individuals, and the result indicates that long life is largely dependent on heredity. His investigation has also provided important information on the results of early marriage. His statistics appear to show "that the younger the parents at birth of an individual, the greater that individual's chance of long life. This correlation extends almost to the physiological limit at which reproduction becomes possible." In order to continue the investigation of inheritance of longevity, Dr. Bell has founded the Genealogical Record Office at 1601, Thirty-fifth Street, North-West, Washington, D.C.

Hare-lip. Mr. William F. Blades, of the Eugenics Record Office, is making a special study of hare-lip in man, and is also carrying on breeding experiments with several hare-lip strains of Boston terriers. "In the dogs, as in man, hare-lip and cleft palate are found to be highly hereditary in character, but up to the present Mr. Blades has been unable to determine in what way they are inherited."

The Families of American Men of Science. Prof. J. McKeen Cattell, of Columbia University, has been engaged for several years in a study of the families of 1,000 American men of science, and some of the results are given below. "The completed family of contemporary scientific men is about 2, the surviving family about 1.8, and the number of surviving children from each scientific man about 1.6. Twenty-two per cent. of the families are childless; only one family in 75 is larger than six. The same conditions obtain for other college graduates. Answers have been received from 461 leading scientific men giving the causes which led to the limitation in size of their families. One hundred and seventy-six were not voluntarily limited, while 285 were so limited, the cause of the voluntary limitation being health in 133 cases, expense in 98

cases, and various other reasons in 54 cases. Childlessness was involuntary in two-thirds of the cases. In the standardised family of two the condition is desired in six cases out of seven.

Huntington's Chorea. Dr. Elizabeth B. Muncey has traced this condition, which behaves as a definitely dominant trait, back as far as the Witches of Salem. The documents collected and the contents of some printed genealogical and historical works are being indexed by name, place and trait in the Eugenics Record Office.

Mortality Studies. A gigantic collection of data is being analysed for purposes which interest this association in the medico-actuarial mortality investigation under the direction of Mr. Arthur Hunter, of the New York Life Insurance Company. Details have been furnished regarding 2,000,000 deaths. Four volumes of statistics have been published and a fifth is to follow.

The Human Eye. Investigations have been made during the past year in two peculiar traits—very round eyes, and eyes closing in laughter. Professor Roswell H. Johnson, of Pittsburgh University, says that both these traits show segregation, but apparently not on Mendelian proportions.

Great Personalities. Dr. Frederick Adams Woods, of Brookline, Mass., states:—"I have found in Great Britain the material welfare of the nation during the last two centuries has been greatly dependent on the presence of a few very exceptional statesmen, chiefly Prime Ministers. At least it may be said there is a strong correlation between politico-economic conditions and the character of English political leaders, and that under weak and incompetent Premiers the country has been visited by relative stagnation or decline. It is already statistically known that the able statesmen for which England is famous have been born in the upper classes. Therefore, the greater these influences are proved to be, the greater is the importance of positive eugenics. . . . Some results will very shortly be ready for publication, based upon a tentative objective list of about 3,500 of the most eminent Americans divided into several grades, showing occupation, birth-place by States, and the different degrees of relationship to others within the list. . . . The research as a whole strongly indicates the influence of heredity over environment."

Left-handedness. Dr. H. E. Jordan, Department of Anatomy, University of Virginia, states:—"Left-handedness or right-handedness may be considered alternative or unit characters in a Mendelian sense. In terms of presence and absence, to which scheme the majority of Mendelian characters appears to conform, right-handedness may be conceived as dependent on the presence of the determiner in the germ-plasm, left-handedness and ambidexterity as the result of its absence. But right-handed individuals are of two sorts—those both of whose parents were right-handed, and those with only one parent right-handed. The former are said to be of duplex, the latter of simplex, condition. Those with both parents left-handed, *i.e.*, lacking the determiner of right-handedness, are said to be nulliplex. The right-handed condition dominates or masks the left-handed condition in the hybrid generation. When left-handed mate with left-handed, all the children will be left-handed. When the determiner for a character is absent from the germ-plasm of the parent, that character cannot appear in the body of the offspring. When simplex mate with simplex, one in every four will be left-handed. This is the well-known 1 to 3 Mendelian ratio for hybrid crosses with respect to a particular pair of unit characters. When simplex mate with nulliplex one-half of the offspring will lack the determiner for right-handedness and be left-handed."

Skin Colour of Mulattoes, by Charles B. Davenport. Pp. 556-558. In order to test the theory that hybridisation of skin colour really does show a typical blending and failure to segregate, the author, with the assistance of a trained field agent, made measurements upon the skin colour of

between 600 and 700 individuals, the children of 200 pairs of parents, chiefly in the islands of Bermuda and Jamaica. The measurements of the skin colour was made by means of a colour top. The author says :—" The result of this investigation is clear-cut, namely, skin colour does segregate, and the offspring of two strict mulatto parents may have skin colour ranging from that of a pure white to quite dark in colour, like that of a West Coast African negro. . . . The study shows, moreover, that the apparent blending is due to the complicated nature of the factors upon which negro skin colour depends. After careful analysis of all the results of all the varied matings that were studied the conclusion was drawn that in the full-blooded negro there are four factors that make for skin pigmentation, and that correspondingly there are five conditions of these factors possible in the skin of the descendants of mulattoes, viz., no factor for black, one factor, two factors, three factors, or four factors for black. It follows from the fact of segregation also that the offspring of two mulattoes are much more variable than mulatto parents themselves. . . . One of the interesting facts brought out in the investigation was the fact that the negro skin colour undergoes a clear development from birth onward during the first two years or more of life. . . . Our studies, also, furnish no support for the view that hybrids are less fertile than pure races in man."

POPULAR SCIENCE MONTHLY, January, 1915. Vol. lxxxvi., No. 1. *The Indian's Health Problem.* By Charles A. Eastman, M.D. Pp. 49-54. In 1890 the writer was appointed physician to 10,000 Ogallalla Sioux and Northern Cheyenne Indians at Pine Ridge agency and found his predecessor practising his profession through a small hole in the wall between his office and the general assembly room of the Indians. He remarks that the health situation in the reservations was undoubtedly worse 20 years ago than it is to-day. The Indians suffered from the abrupt changes in their mode of life : too much artificial heat, too much clothing, impure air, indigestible food, the meat being often diseased. With the exception of the Navajoes and a few other tribes who retained their native vigour and independence the typical " agency Indian " of the North-West lived a squalid life, apathetic physically, mentally and spiritually. His domicile consisted of a one-roomed log cabin about 12 by 20 feet. Families of four to ten lived in these huts. The author remarks :—" These people were accustomed to the purest of air and water. The tepee was little more than a canopy to shelter them from the elements; it was pitched every few days upon new, clean ground. Clothing was loose and simple, and frequent air and sun-baths, as well as baths of water and steam, together with the use of emollient oils, kept the skin in perfect condition. Their food was fresh and wholesome; largely wild meat and fish, with a variety of wild fruits, roots and grain, and some cultivated ones."

As the result of an inquiry into health conditions among the tribes made in accordance with an Act of Congress in 1912, the report presented in January, 1913, was, in brief, as follows :—" (1) Trachoma is exceedingly prevalent among Indians. (2) Tuberculosis among Indians is greatly in excess of that estimated for the white population. (3) The sanitary conditions upon reservations are, on the whole, bad. (4) The primitive Indian requires instruction in personal hygiene and habits of living in stationary dwellings. (5) The sanitary conditions in most Indian schools are unsatisfactory. (6) There is danger of the spread of tuberculosis and trachoma from the Indian to other races. (7) Due care is not taken in the collection and preservation of vital statistics. (8) The medical department of the Indian Bureau is hampered by insufficient authority and inadequate compensation." As a result of this report conditions have improved. The writer thinks that the race has reached and passed the lowest point of its decline and is beginning slowly but surely to recuperate. The last censuses show a slight but continuous increase

in the total number of Indians, both mixed-blood and full-bloods. "It is too late, however, to save his colour; for the Indian young men themselves have entirely abandoned their old purpose to keep aloof from the racial melting-pot. They now inter-marry extensively with Americans and are rearing a healthy and promising class of children. The tendency of the mixed-bloods is towards increased fertility and beauty as well as good mentality. This cultivation and infusion of new blood has relieved and revived the depressed spirit of the first American to a noticeable degree, and his health problem will be successfully met if those who are entrusted with it will do their duty."

What Animal Experimentation has done for Children. By Henry Dwight Chapin, M.D., New York. Pp. 55-62. The author remarks that the victims of microbic diseases are chiefly the young, and that it is a question of morals as well as medicine to obtain a complete understanding of such diseases and their treatment. This has only been possible through experimentations with the lower animals. The author gives the results achieved in diphtheria, cerebro-spinal meningitis and tuberculosis through scientific investigation, and refers to the successful treatment of bone and gland tuberculosis in children at seaside and mountain sanatoria, due to Trudeau's experimentation with rabbits; to the rehabilitation of a whole class of mental defectives by means of thyroid extract obtained from an animal. He also gives the results which have been achieved in smallpox, hydrophobia and malaria; and referring to surgical conditions, mentions the results expected from the successful experiments in bone grafting which has been carried out on animals, and to the saving of infant life in cases of hemorrhages by transfusion, which was first studied and the technique perfected by vessel *suturing* in the lower animals.

QUARTERLY CHRONICLE.

CENTRAL SOCIETY.

March 4th.—At the Grafton Galleries, 5.15 p.m., Sir Arthur Clay on "Eugenics and the Poor Law." Chairman, Major Leonard Darwin.

COMMITTEES.

Jan. 26th.—Executive Council Meeting.
Feb. 23rd.— ,, ,, ..
March 23rd.—General ,, ,,

MEETINGS.

January 31st.—Mr. R. Dixon Kingham before the Men's Meeting of the Anerley Congregational Church, on "Will the Fit Survive?"

March 6th.—Mr. H. Rand before the Stepney Jewish Literary and Debating Society, on "The State and Eugenics."

LIVERPOOL BRANCH.

The fourth annual meeting was held in the Medical Institution on January 20th; in the unavoidable absence of Sir James Barr, the chair was taken by Rev. James Hamilton. The report and accounts of the Branch for the calendar year 1914 were read and explained, and unanimously adopted on motion from the chair. It was agreed, in view of the exceptional circumstances of the time, to simply re-appoint the same officers and Council *en bloc* for 1915. A paper on "Ability and Life," illustrated with charts and diagrams, was then read by the Hon. Secretary and discussed by the members.

On February 24th Dr. W. B. Warrington gave a most interesting address, entitled "Some Views on the Nature of Heredity." By the aid of lantern slides and diagrams he explained cell structure, the appearance of chromosomes, and the essential physical continuity of the germplasm, while the proportions observed in Mendelian inheritance were shown experimentally to accord with the laws of chance. An interesting discussion followed.

Resulting from the efforts of the Council of the Branch, a Professional Classes War Relief Committee has now been formed and launched upon an independent career; it has put itself in touch with the committee administering the Liverpool Branch of the Prince of Wales's Fund, and with the Professional Classes War Relief Council in London.

The deepest sympathy of the Branch is tendered to our President, whose son, Lieutenant S. T. Barr, 3rd Hussars, was killed in action February 25th.

R. T. BODEY, Hon. Sec.

PUBLICATIONS RECEIVED.

Sex Teaching: A Statement of the Problem. (Printed for the Moral Education League, and privately circulated.)

Improving Egg-Production by Breeding, by RAYMOND PEARL. (Reprinted from the Annual Report of the Maine Agricultural Experiment Station for 1914.)

Studies on Oat Breeding: Variety Tests, by F. M. SURFACE and CLARENCE W. BARBER. (Reprinted from the Annual Report of the Maine Agricultural Experiment Station for 1914.)

Biometrics. (Reprinted from *The American Naturalist.*)

The Service and Importance of Statistics to Biology, by RAYMOND PEARL. (Reprinted from the Quarterly Publications of the American Statistical Association, 1914.)

The Problems of Heredity, by DR. E. APERT. (Reprinted from the Smithsonian Report for 1913.)

On Means for the Prolongation of Life, by SIR HERMANN WEBER, M.D., F.R.C.P. (Publishers: John Bale, Sons and Danielsson, Ltd., 1914. Price 4s. 6d. net. Pp. 235.)

The Next Generation, by FRANCIS GULICK JEWETT. (Publishers: Ginn and Co., 9, St. Martin's Street, Leicester Square, London, W.C. Price 3s. 6d. Pp. 235.) Supplement supplied to above. Pp. 9.

Dynamic Evolution: A Study of the Causes of Evolution and Degeneracy, by CASPER L. REDFIELD. (Publishers: G. P. Putnam and Sons, The Knickerbocker Press, New York and London. Price 6s. net. Pp. 210.)

The Shadow on the Universe, or the Physical Results of the War, by J. M. CLAYTON. (Publishers: Simpkin, Marshall, Hamilton, Kent and Co., Ltd., 4, Stationers' Hall Court, London, E.C. Price 2s. 6d. net. Pp. 142.)

Defective Children, by T. N. KELYNACK. (Publishers: John Bale, Sons and Danielsson, Ltd., Medical Publishers, Oxford House, Great Titchfield Street, London. Price 7s. 6d. net. Pp. 462.)